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Optimized Operation and Electrical Power Supply System of Ignitor* A. COLETTI, ENEA, Italy, G. CANDELA, R. COLETTI, P. COSTA, G. MAFFIA, M. SANTINELLI, F. STARACE, M. SFORNA, GRTN, Italy, G. ALLEGRA, L. TREVISAN, CESI, Italy, A. FLORIO, Ansaldo-Ricerche, Italy, R. NOVARO, ASI Robicon, Italy, B. COPPI, MIT — The performance of the control system for the position and shape of the elongated, tight aspect ratio plasma column of Two reference sets of parameters for the operation of Ignitor have been identified. One, the main set, involves plasma currents up to 11MA and toroidal fields up to 13T. The reduced parameter set corresponds to 7MA with fields of 9T and considerably longer pulse flat-tops. The evolution of the relevant currents in the toroidal and the poloidal field magnet systems has been optimized in order to minimize the requirements on the electrical power supply and cryogenic cooling systems. Thyristor amplifiers are adapted to drive both the toroidal and poloidal field magnet systems. The total installed power for these systems is 2400 MVA. The connection of this to the terminals, involving two nodes of the 400 kV grid, at the Caorso site, which houses a dismantled nuclear power station, has been analyzed and authorized by the TERNA- GRTN Agency. A particular consideration has been given to the problems involving the control of both the position and the shaping of the plasma column.
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